IN THE CLAIMS:

Please amend the claims as follows:

Claims 1 – 10 (cancelled).

11. (currently amended) A method for discriminately exciting a fluorescent sample comprising:

detecting an image;

feeding light information derived from the detected image to a spatial light modulator; and

modulating spatial light based at least in part on said light information; wherein

said image is detected from emitted light released from a fluorescent sample being excited by said modulated spatial light; and

said modulated spatial light is discriminately emitted by said spatial light modulator to the fluorescent sample based at least in part on said light information; and further wherein

said light information comprises data including brightness levels and spatial distribution of the level of light emitted by the fluorescent sample, wherein said spatial light modulator moves along the optical axis of illumination.

Claims 12 and 13 (cancelled).

14. (original) The method of claim 11, further comprising:

recording said light information to a memory; wherein

after said light information is recorded within said memory, said recorded light

information allows a user to recall and recurrently implement a discriminate excitation

light to the fluorescent sample from said spatial light modulator.

15. (original) The method of claim 11, wherein an intensity of said excitation light

for exciting the fluorescent sample is substantially inversely proportional to an intensity of

said light emitted by the fluorescent sample.

Claims 16 – 19 (cancelled).

20. (currently amended) The method of claim 11, further comprising:

recording said light information to a memory; wherein

after said light information is recorded within said memory, said recorded light

information allows a user to recall and recurrently implement a discriminate excitation

light to the fluorescent sample ~~saimple~~ from said spatial light modulator; and

varying said excitation light for exciting the fluorescent sample on a point-by-point

basis based on intensities of said light emitted by the fluorescent sample; where

said excitation light is substantially inversely proportional to an intensity of said

light emitted by the fluorescent sample.

21. (currently amended) A microscope comprising:

an image detector;

a spatial light modulator, wherein said spatial light modulator is coupled to said image detector, said image detector is capable of detecting light emitted from a fluorescent ~~flourescent~~ sample being excited by an excitation light modulated by said spatial light ~~lisght~~ modulator, said spatial light modulator discriminately emits said excitation light to the fluorescent ~~flourescent~~ sample based on information provided from at least said image detector, and said information comprises data including brightness levels and the spatial distribution of the light emitted by the fluorescent ~~flourescent~~ sample; and

at least one objective, wherein said spatial light modulator moves along the optical axis of illumination.

22. (original) The microscope of claim 21, wherein said image detector is at least one of a charged coupled device, a CMOS camera, a video camera, and a photodiode array.

23. (currently amended) The microscope of claim 21, wherein said spatial light modulator comprises is selected from the group consisting ~~at least one~~ of a liquid crystal display, a micro-mirror device, an array of light-emitting diodes and a fiber bundle, an array of light bulbs, and an electro-mechanical device.

24. (original) The microscope of claim 21, further comprising:

a memory, wherein

said memory is coupled with said image detector; and

said information is recorded within said memory, said recorded information

allowing a user to recall and recurrently implement a discriminate excitation light to the

fluorescent sample from said spatial light modulator.

25. (original) The microscope of claim 21, wherein an intensity of said excitation

light for exciting the fluorescent sample is substantially inversely proportional to an

intensity of said light emitted by the fluorescent sample.

26. (original) The microscope of claim 21, wherein an intensity of said excitation

light for exciting the fluorescent sample varies on a point-by-point basis with intensities of

said light emitted by the fluorescent sample.

Claim 27 (cancelled).

28. (original) The microscope of claim 21, further comprising a computer for

controlling said spatial light modulator through manipulation of said information.

Claim 29 (cancelled).

30. (original) The microscope of claim 21, further comprising:

a memory; wherein

said excitation light for exciting the fluorescent sample varies on a point-by-point

basis based on said light emitted by the fluorescent sample; and

said excitation light is substantially inversely proportional to an intensity of said

light emitted by the fluorescent sample; where

said information is recorded within said memory, said recorded information

allowing a user to recall and recurrently implement a discriminate excitation light to the

fluorescent sample from said spatial light modulator.

Claim 31 (cancelled).

Claims 32 – 37 (cancelled).

38. (currently amended) A computer program product for enabling a computer to

discriminately excite a fluorescent sample comprising:

a computer readable medium, and software instructions, on the computer readable

medium, for enabling the computer to perform predetermined operations comprising:

detecting an image;

feeding light information derived from the detected image to a spatial light

modulator; and

modulating a spatial light with said spatial light modulator based at least in part on

said light information; wherein

said image is detected from light released from a fluorescent sample being excited

by said modulated spatial light; and

said modulated spatial light is discriminately transmitted by said spatial light

modulator in at least a grayscale manner to the fluorescent sample based on said light

information; and further wherein

said light information comprises information which distinguishes between

variations in the level of light emitted by the fluorescent sample, wherein said spatial light

modulator moves along the optical axis of illumination.

Claims 39 – 46 (cancelled).

47. (original) A computer program product for enabling a computer to

discriminately excite a fluorescent sample according to claim 38, further wherein said

predetermined operations comprise illuminating said fluorescent sample with epi-

illumination.

Claims 48 – 51 (cancelled).

52. (currently amended) The method of claim 11, further including:

emitting said spatial light in a predetermined predetermioned illuminating light

pattern on said sample.

Claims 53-55 (cancelled).

56. (original) The microscope of claim 21, wherein said spatial light modulator emits a predetermined illuminating light pattern on said sample.

57. (currently amended) The microscope of claim 21, wherein said spatial light modulator modulates based on feedback from said ~~siad~~ image detector and an operator input.

58. (currently amended) The microscope of claim 21, wherein said spatial light modulator modulates based on feedback from said ~~siad~~ image detector.

Claims 59 – 71 (cancelled).